BSc Digital and Technology Solutions Degree Apprenticeship

Final Year Project Handbook

Contents

1. Introduction

The final year project is a work-based project that is designed to assess the specialism practical skills, knowledge and professional behaviours laid out in the:

https://www.instituteforapprenticeships.org/apprenticeship-standards/digital-and-technology-solutions-professional-integrated-degree-v1-1

It will require you to design, implement and test a significant piece of product, to at least prototype level, to achieve a set of clearly defined business objectives. It will also require you to undertake a significant element of project planning, including a business rationale, risk analysis, project scoping and detailed costing. Throughout the project, you will be required to demonstrate the ability to work independently, to act professionally, to show initiative, and to work with academic rigour.

2. General Information

Module status	Core
Credit value	40 credits
Level	6
Module coordinator	Farhad Keissarian
Duration	Approximately 6 months.

3. Project Selection

You will work with your academic and workplace project supervisors to identify and select a suitable project. The project must be agreed by both supervisors before work can begin. Before a project is signed off, it must be clear that it:

- Can be completed within the stated time constraints.
- Can be completed given available technical resources (e.g. tools and network access).
- Is at an appropriate level of difficulty (not too challenging and not insufficiently challenging).
- Covers, as far as possible, the full range of skills and knowledge described in the apprenticeship standard (e.g. scoping, planning, costing, analysis, design, implementation, testing, etc.).
- Is original in nature (e.g. has not been done before).
- Satisfies all ethical and legal requirements for software engineering projects (e.g. copyright, confidentiality, etc.).

Please see Choosing a Final Year Project Dissertation for further guidance.

4. Supervision

4.1 Academic Supervisor

The academic supervisor will provide academic support to the student throughout the duration of the project. This will include:

- Monitoring and ensuring progress.
- Providing academic and technical guidance.
- Providing feedback on submitted project elements (e.g. proposal and draft).
- Answering student queries.

An academic supervisor will be assigned to each student.

4.2 Workplace Supervisor

The workplace supervisor will provide technical and material support for the student in the workplace. This will include:

- Monitoring and ensuring progress.
- Ensuring availability of required technical and material resources (e.g. servers, tools, platforms, study time).
- Providing technical guidance.
- Answering student queries.

4.3 Supervision Meetings

You should arrange a face-to-face progress meeting with your academic supervisor during the Ada weeks as set out in the calendar. General queries can be dealt with via email.

It is your responsibility to maintain contact with your academic supervisor. Students who fail to keep in contact with their supervisor, or miss appointments, cannot expect to be chased.

You are advised to arrange project supervision meetings with your workplace supervisor, as required.

5. Project Deliverables

The project deliverables comprise the project proposal and the project report, referred to as ***"Dissertation"***. The following weightings will apply to project elements:

Component	Weighting	Wordcount
Proposal	20%	1500 words, +/- 10%
Dissertation	80%	6000 words, +/- 10%

5.1 Project Proposal

The project proposal must include the following sections:

Title page	Title, Name, Employer's name, Date, and the Pathway
Problem Outline, Solution Outline and Assumptions **20%**	• Provides the reader with a clear sense of the problem context. • Provides the reader with a clear sense of the proposed solution. • Provides the reader with a clear and realistic account of any assumptions that are being made on the part of the author.
User Requirements **10%**	• Provides an initial set of functional, non-functional and security requirements for the proposed solution (application). • No major omissions. • Each requirement is discrete and precise.
Risk Analysis **10%**	Provides an appraisal of: - Things that can go wrong. - The likelihood of things going wrong. - The consequences of things going wrong. - Measures that can be put in place to stop things going wrong.
Choice of Project Methodologies, Technologies, and Tools **20%**	• Provides rationale for choice of project management methodology. • Provides rationale for choice of design methodologies and techniques. • Provides rationale for implementation technologies and tools (this should include system design tools, implementation tools, testing tools, and configuration management tools).
Testing Plan **10%**	• Provides an initial account of how the final work/ application will be tested against the set objectives. • Appropriate tests chosen for application being tested.
Project Plan (10%)	• Provides a detailed plan of work for the project. • All project tasks should be identified and decomposed into sub-tasks. Time estimations and dependence relations should be shown. • The project plan should be completed using specialist project planning software (e.g.; GANTT format).
Research **10%**	• Evidence of research in the form of accurate references. • References appropriate and properly formatted in Harvard Style. • Citations done correctly.
Quality of Writing **10%**	• Excellent spelling and grammar throughout. Standard academic English used. • Excellent paragraphing and sub-division of the report. All required elements are presented to a high standard. Graphics and tables properly labelled and indexed.

5.2 Project Dissertation (Write-up)

The Dissertation builds from the project proposal and the progress you have made throughout the course of the project. There is no point in developing a good project and then preparing a low-quality written dissertation. The style of the dissertation slightly varies for different pathways.

Please see Appendices 1, 2, 3 and 4 for the structure, content and weighting of each chapter of the dissertation for Software Engineering, Data Analytics, IT Consultant and Cyber Security pathways, respectively.

5.3. Project Presentation (15 minutes) : During the EPA Interview

- You will give a presentation focusing on the outcomes of the synoptic project.
- The presentation will take place following the completion of the project and the submission of the Dissertation and at the start of the EPA interview.
- The presentation will be assessed as a part of the EPA.
- The presentation will be attended by
    - An External Assessor
    - Your Ada supervisor
    - Workplace representative (e.g. mentor, line manager) .
- Skills coaches may also attend as observers.
- The presentation will involve a Q&A session and you should use a slide deck to prepare the slides for your presentation.

For further details on the project presentation, please see the “EPA : A guide for Apprentices & Employers”.

5.4 Drafting

It is advised for the dissertation to undergo a drafting process prior to submission. You will have a chance to submit a draft version of the report for comment prior to submission.

5.5 References and Citations

You must provide references for all source material that you have read in the course of your project (e.g., books, journal articles, web sources, etc.). This includes cited material and non-cited material. References should be written in the Harvard style.

All information from external sources that you include in your written work must be clearly and correctly cited. This includes any paraphrases or quotations. Citation should be done in a standard academic style.

5.6 Plagiarism

Plagiarism is the presentation of another person's thoughts, words, ideas, designs or programs as though they were your own. It is a serious academic offence, and treated very seriously by the College. Direct quotation from the work of others (published or unpublished) must always be clearly identified as such by being placed in quotation marks, with a full reference to the source provided.

Where a summary of someone else's writing or ideas is made, i.e. expressed in different words to the original, reference to the source must still be provided. A series of short quotations from several different sources, if not clearly identified as such, constitutes plagiarism just as much as an unacknowledged long quotation from a single source. All submissions will be scrutinised by staff for signs of plagiarism.

6. Submissions

Both project proposal and the Dissertation should be submitted as PDF documents, via Google Classroom before the given deadline.

Your software(code) (if applicable) should also be submitted as a Zip file via Google Classroom along with your dissertation.

6.1 Penalties for Late Submission

All submissions are subject to a deadline, and you should always try to meet the deadline. Submissions made after the deadline without a valid extenuating circumstance will be subject to a grading cap of 40%.

7. Marking

All projects are marked in accordance with the Ada Marking and Moderation Policy. Each dissertation is marked by the project supervisor and the external assessor. The final grade is calculated as the average of the two marks. In the event of disagreement between the supervisor and the external assessor (i.e if the grades differ by 10 marks or more), a third marker or the External Examiner will also consider the project.

8. Confidentiality

Your project may contain confidential material that your employer does not want disclosed to the general public. This could include sensitive data, business ideas, programming code, etc. In such cases, your employer may have reservations about allowing you to submit your work to the College for assessment. In such cases, we are willing to make special arrangements for submission to take place in a manner that does not compromise confidentiality. This may include signing a confidentiality agreement.

Please make sure that you consult with your employer with regards confidentiality issues relating to your project before you begin. If there are confidentiality issues, please raise these with your

academic supervisor at the earliest possible opportunity, so that appropriate arrangements can be put in place for assessment to take place. Please see Appendix 5, Referencing the confidential information.

9. Suggested Reading

How to Write a Dissertation | A Guide to Structure & Content

https://www.scribbr.co.uk/category/thesis-dissertation/

Writing academically: Academic style
https://libguides.hull.ac.uk/writing/style

Open University guidance on plagiarism and referencing

Appendix 1: Proposal Rubric

Section	Quality Level		
1. **Problem Outline, Solution Outline and Assumptions** **20 marks**	1-9	10-15	16-20
	The problem is identified and defined in a manner that is sometimes/ somewhat unclear. The proposed solution is unclear and key details are missing. No assumptions are considered.	The problem is reasonably identified, but without consistent precision of detail. The proposed solution is presented satisfactorily. Assumptions made are presented.	Provides the reader with a clear sense of the problem context. Provides the reader with a clear sense of the proposed solution. Provides the reader with a clear and realistic account of any assumptions that are being made on the part of the author.
2. **User Requirements** **10 marks**	1-4	5-7	8-10
	Most requirements are not presented. Most requirements are unclear or and/not testable. The list of requirements fails to link to the project goal.	Some functional and/or non-functional requirements are missing. Some requirements do not seem to be testable. The requirements explain the project goal reasonably well.	Provides an initial set of functional, non-functional and security requirements for the proposed solution. Each requirement is precise and testable. The requirements explain the project goal very well.
3. **Risk Analysis** **10 marks**	1-4	5-7	8-10
	Addresses only surface-level or obvious risks. Fails to clearly provide an appraisal of: Things that can go wrong. The likelihood of things going wrong. The consequences of things going wrong. Measures that can be put in place to stop things going wrong.	Identifies most risks. Provides reasonable appraisal of: Things that can go wrong. The likelihood of things going wrong. The consequences of things going wrong. Measures that can be put in place to stop things going wrong.	Provides a comprehensive list of all risks. Provides very clearly an appraisal of: Things that can go wrong. The likelihood of things going wrong. The consequences of things going wrong. Measures that can be put in place to stop things going wrong.
4. **Choice of Project Methodologies, Technologies, and Tools**	1-9	10-15	16-20
	Inadequate information is provided to support the rationale for the choice of project	Some information is provided to support the rationale for methodology or approach	Provides very good rationale for choice of project management

20 marks	management methodology, design methodologies and implementation tools.	to be used to address the project. The explanation on the choice of design methodologies and implementation technologies and tools are satisfactory.	methodology, design methodologies and implementation technologies and tools. The proposed methodology, or approach is clearly described and is reasonable in terms of facilitating the completion of the project.
5. **Testing Plan** **10 marks**	1-4 The initial account of how the final work/ application will be tested against the set objectives is unclear. Inadequate tests are proposed for application being tested.	5-7 Some explanations are presented on how the final work will be tested, but the test plan is not against all the objectives.	8-10 Provides an initial account of how the final work/ application will be tested against the set objectives. Appropriate tests are proposed for application being tested.
6. **Project Plan** **10 marks**	1-4 Plan lists some of the task's division of work, but not with the right amount of detail or have serious omissions. Time estimations and dependence relations are not shown. No project planning software is used	5-7 Plan lists the breakdown of most tasks, division of work with the right amount of detail. Time estimations and dependence relations are shown in a satisfactory manner. No project planning software is used	8-10 Provides a detailed plan of work for the project. All project tasks are identified and decomposed into sub-tasks. Time estimations and dependence relations are clearly shown. The project plan is completed using a specialist project planning software (e.g.; GANTT format).
7. **Research** **10 marks**	1-4 Few relevant references for the project is cited throughout the text. References are not correctly listed/cited. The proposal does not follow an appropriate referencing style.	5-7 Some evidence of detailed research in the form of references is presented. Some relevant references for the project are cited throughout the text and are listed in the reference list.	8-10 Evidence of detailed research in the form of detailed references is well presented. References are appropriate and properly formatted in Harvard Style. Citations done correctly.

		The proposal does not follow an appropriate referencing style.	
8.	1-4	5-7	8-10
Quality of Writing **10 marks**	Proposal is vague, disjointed, and shows little sense, structure, or flow. Poor spelling and grammar throughout. Poor paragraphing and sub-division of the report. Most required elements are not presented to a high standard. Graphics and tables are not labelled and indexed.	Proposal makes general sense but requires some work to be structured in a logical manner. Good spelling and grammar throughout. Good paragraphing and sub-division of the report. Some required elements are presented to a high standard. Graphics and tables are labelled and indexed.	Proposal is clear, concise, and has a logical structure and flow. Excellent spelling and grammar throughout. Excellent paragraphing and sub-division of the report. All required elements are presented to a high standard. Graphics and tables properly labelled and indexed.

Appendix 2: Dissertation Structure – Software Engineering Pathway

Note: The word count applies only to Chapters 1- 8

Title page	Title, name, employer's name, date, and the following statement: "This report is submitted in partial fulfilment of the requirement for the degree of [BSc Apprenticeship in Digital Technology Solutions] by [Full Name]". The title the dissertation ends up with should be meaningful. E.g., "My Design Project" is not meaningful.
Declaration	The second page should be the following declaration: "All sentences or passages quoted in this report from other people's work have been specifically acknowledged by clear cross-referencing to author, work and page(s). Any illustrations that are not the work of the author of this report have been used with the explicit permission of the originator and are specifically acknowledged. I understand that failure to do this amount to plagiarism and will be considered grounds for failure in this project and the degree. (Your name**)" ** Note that you should type your name here, but you are not required to physically sign this page. By submitting your project through Google Classroom, you agree to the declaration above.
Abstract	This should be two short paragraphs (100 words total), summarising the dissertation. It is important that this is not just a restatement of the original project outline. A suggested flow is background, project aims and main achievements. A bad abstract would have a final paragraph that just said "the achievements will be described" - this is useless, as it says nothing. From the abstract a reader should be able to ascertain if the project is of interest to them and present results of which they would like to know more details.
Acknowledgements	Thanks to whoever may have helped you in any way - both serious and a bit of fun.
Contents	Includes titles and page numbers of all sections and subsections. Chapter 1 begins on page 1. Use Roman numerals for all previous pages, e.g. title page (i), signed declaration (ii) abstract (iii), acknowledgements (iv) and contents (v).

Lists of Tables, Figures, and Glossary (list of abbreviations)	They should start on the page following the table of contents and be in the order Tables, Figures, Glossary (list of abbreviations). Items in lists of Tables and Figures should be in the order in which they occur in the text.
Chapter 1 **Introduction** **5%**	• Details the topic, the background to the project, why the topic is relevant or of interest, what the author hopes to achieve, the aims and objectives of the project. • Has a clear narrative. • Follows a standard introduction format with general statements, specific statements, and a clear thesis statement. • Excellently written. Clear, direct, and precise.
Chapter 2 **Research** **10%**	• Summarises the background reading you have done for the project subject area. • References any relevant theories, studies or related projects that inform your work. • Includes only authoritative sources. All sources are clearly and properly cited. • Evidence of detailed research in the form of detailed references. References appropriate and properly formatted. Citations done correctly.
Chapter 3 **Analysis** **10%**	• Provides a thorough analysis of the problem domain. • Analyses and documents functional non-functional and security requirements. • Requirements should be fully and appropriately documented, actionable, measurable, testable, and linked directly to previously identified business needs. • Requirements should be explicitly linked to specific system stakeholders. • Excellently written. Clear, direct, and precise. No ambiguity or circumlocution.
Chapter 4 **Design** **15%**	• Provides a complete and appropriate set of designs for the project software. • Design diagrams should be annotated with explanations and textual commentary where appropriate. • Designs should be without error. They should cover the system from all perspectives (e.g. UI, data, functionality, and network). Graphics should be of professional quality, and should be properly incorporated into the report. - Possible viewpoints might be: - the business model the system supports; - the user interface; - the dynamic behaviour of the system;

	- how data flows through the system; We strongly recommend that you make extensive use of diagrams, such as entity-relationship diagrams, UML diagrams, or other pictorial techniques (Some types of diagrams that can be included in your design are: Process diagrams that show different stages of processing along with input and output data in between stages or System diagrams that identify different subsystems in your design and the relationship between them). As well as describing the system, it is important that you justify its design, for example, by discussing the implications of constraints on your solution and different design choices, and then giving reasons for making the choices you did.
Chapter 5 **Implementation** **20%**	• Provides a comprehensive account of the implementation of the project. • Makes reference to programme code where appropriate. • Uses code snippets to exemplify areas of complexity that you have dealt with. Shows how the solutions you have produced are optimal solutions. • Accounts for any deviations from the original project plan. Shows how deviations were managed in accordance with your chosen project management methodology. • Details any problems you encountered in the course of the implementation, and how they were overcome. Shows how problems escalated. References your chosen project management methodology. *Note:* Do not attempt to describe all the code in the system, and do not include large pieces of code in this section. Complete source code should be provided separately in Appendix. Instead, pick out and describe just the pieces of code which, for example: - are especially critical to the operation of the system; - you feel might be of particular interest to the reader for some reason;
Chapter 6 **Testing**	• Provides a comprehensive test plan that contains a full range of appropriate tests for the software you have built. • Includes functional and unit testing. • Provides test data and a thorough analysis of that data.

15%	• Shows problems revealed by testing, and how you have overcome those problems. Makes recommendations for improvements to the software based on test results. Data well-presented. • Excellently written. Clear, direct and precise. No ambiguity or circumlocution.
Chapter 7 **Conclusions** **5%**	• Analyses the success or otherwise of the project. • Shows where the project has met business needs, and where it has failed to meet its business needs. • Makes recommendations for further development.
Chapter 8 **Reflection** **10%**	Details from a personal and reflective perspective : i. What you have achieved in the course of the project ii. The main lessons you have learned iii. Mistakes you have made iv. Things you would do differently next time.
References	• You must provide references for all source material that you have read in the course of your project (e.g. books, journal articles, web sources, etc.). • This includes cited material and non-cited material. • References should be written in the Harvard style. • All information from external sources that you include in your written work must be clearly and correctly cited. This includes any paraphrases or quotations. https://www.ukessays.com/referencing/harvard/
Quality of Writing **10%**	• The report is expected to be presented in a professional manner and follow the above structure. • The descriptions, explanations and arguments are expected to be well structured logically with good division and flow at all levels: chapter, section, paragraph, sentence, and clause, supported by diagrams, graphs, tables and standardised citations. • The English must be clear, precise, concise, and grammatically correct. • The report should be properly spell-checked and proofread. • The report should fall with the required word count.
Appendices	These may be provided to include further details of results, certain illustrative parts of program code, if any, user documentation, log of project milestones.

	In particular, if there are technical details of the work done that might be useful to others who wish to build on this work, but that are not sufficiently important to the project as a whole to justify being discussed in the main body of the dissertation, then they should be included as appendices. Appendices are not treated as part of the dissertation for the purposes of assessing it. In other words, there is no expectation that the examiners should read the appendices as part of the assessment process. Hence, it is important that any material which will be significant to judging the quality of the dissertation or of the project as a whole should be in the main body of the dissertation, and not in appendices. You may include an appendix containing all your source code listings, if any. However, you still need to submit your code electronically.

Appendix 3: Dissertation Structure – Data Analytics Pathway

Note: The word count applies only to Chapters 1- 6

Title page	Title, name, employer's name, date, and the following statement: "This report is submitted in partial fulfilment of the requirement for the degree of [BSc Apprenticeship in Digital Technology Solutions] by [Full Name]". The title the dissertation ends up with should be meaningful. E.g., "My Design Project" is not meaningful.
Declaration	The second page should be the following declaration: "All sentences or passages quoted in this report from other people's work have been specifically acknowledged by clear cross-referencing to author, work and page(s). Any illustrations that are not the work of the author of this report have been used with the explicit permission of the originator and are specifically acknowledged. I understand that failure to do this amounts to plagiarism and will be considered grounds for failure in this project and the degree as a whole. (your name**)" ** Note that you should type your name here, but you are not required to physically sign this page. By submitting your project through Google Classroom, you agree to the declaration above.
Abstract	This should be two short paragraphs (100words total), summarising the dissertation. It is important that this is not just a restatement of the original project outline. A suggested flow is background, project aims and main achievements. A bad abstract would have a final paragraph that just said "the achievements will be described" - this is useless, as it says nothing. From the abstract a reader should be able to ascertain if the project is of interest to them and present results of which they would like to know more details.
Acknowledgements	Thanks to whoever may have helped you in any way - both serious and a bit of fun.
Contents	Includes titles and page numbers of all sections and subsections. Chapter 1 begins on page 1. Use Roman numerals for all previous pages, e.g., title page (i), signed declaration (ii) abstract (iii), acknowledgements (iv) and contents (v).

Lists of Tables, Figures, and Glossary (list of abbreviations)	They should start on the page following the table of contents and be in the order Tables, Figures, Glossary (list of abbreviations). Items in lists of Tables and Figures should be in the order in which they occur in the text.
Chapter 1 **Introduction** **5%**	• Details the topic, the background to the project, why the topic is relevant or of interest, what the author hopes to achieve, the aims and objectives of the project. • Has a clear narrative. • Follows a standard introduction format with general statements, specific statements, and a clear thesis statement. • Excellently written. Clear, direct and precise.
Chapter 2 **Research** **10%**	• Summarises the background reading you have done for the project subject area. • References any relevant theories, studies or related projects that inform your work. • Includes only authoritative sources. All sources are clearly and properly cited. • Evidence of detailed research in the form of detailed references. References appropriate and properly formatted. Citations done correctly.
Chapter 3 **Methodology** **30%**	• The methodology chapter allows you to explain how you achieved the findings, why they are reliable, and how they helped you address the stated objectives. • The chapter consists of, data collection methods, data analysis methods, limitations, and ethical considerations (if any). • You might want to consider the following when writing methodology for the dissertation: *Type of approach that your work is based on. This means that your methodology chapter should clearly state whether you chose to use quantitative or qualitative data collection techniques or a mix of both.* o <u>Quantitative approach</u> Quantitative approach is expressed in numbers and graphs. It is used to test or confirm theories and assumptions. This type of approach can be used to establish generalizable facts about a topic. Common quantitative methods include experiments, observations recorded as numbers, and surveys with closed-ended questions. o <u>Qualitative approach</u> Qualitative approach is expressed in words. It is used to understand concepts, thoughts or experiences. This type of approach enables you to gather in-depth insights on topics that are not well understood. Common qualitative methods include interviews with open-ended questions,

	observations described in words, and literature reviews that explore concepts and theories. You can also use a mix of qualitative and quantitative methods (which is becoming increasingly popular these days). This method is beneficial if you are interested in putting quantitative data into a real-world context or reflect different perspectives on a subject. i. Data collection techniques employed such questionnaires, surveys, focus groups, observation etc. ii. Data analysis strategies employed. iii. Software and tools used for data analysis, together with a brief justification of your choice of software and tools. iv. Limitations to highlight any hurdles you had to overcome when carrying out your work
Chapter 4 **Findings and Interpretations** **30%**	• In this chapter, you present your findings/ results that are directly relevant to your stated objectives, combined with a discussion. It is common to have both findings and discussion grouped under the same chapter, as it is difficult to include this data in a meaningful way without explanation and interpretation. • The purpose of the discussion is to interpret your findings and discuss these against the set objectives. This section should also highlight how your work has contributed to the understanding of the stated problem. • State your major findings – this can be a brief opening paragraph that restates the stated objectives, the methods you used to attempt to meet the objectives, and the major findings of your work. • Here are some examples of how to present the summary of your findings: "The data suggests that", "The results confirm that", "The analysis indicates that", "The research shows a relationship between", etc. • Discussion does not require any new data or information, because it is more about the interpretation/meaning of the data you have already collected and presented. Here are some questions for you to think over when writing the discussion: - Did your work meet the objectives or test the hypothesis? - Did you come up with some unexpected results for which you have to provide an additional explanation or justification? - Are there any limitations that could have influenced your work?
	• The conclusion chapter generally connects the beginning of your work (introduction, stated problem, project objectives) to

Chapter 5 **Conclusions** **5%**	• the findings/ results and implications of your work. • Analyses the success or otherwise of the project. • Shows where the project has met business needs, and where it has failed to meet its business needs. • Makes recommendation for further development.
Chapter 6 **Reflection** **10%**	Details from a personal and reflective perspective: v. What you have achieved during the project vi. The main lessons you have learned. vii. Mistakes you have made. viii. Things you would do differently next time.
References	• You must provide references for all source material that you have read in the course of your project (e.g., books, journal articles, web sources, etc.). • This includes cited material and non-cited material. • References should be written in the Harvard style. • All information from external sources that you include in your written work must be clearly and correctly cited. This includes any paraphrases or quotations. https://www.ukessays.com/referencing/harvard/
Quality of Writing **10%**	• The report is expected to be presented in a professional manner and follow the above structure. • The descriptions, explanations and arguments are expected to be well structured logically with good division and flow at all levels: chapter, section, paragraph, sentence, and clause, supported by diagrams, graphs, tables and standardised citations. • The English must be clear, precise, concise, and grammatically correct. • The report should be properly spell-checked and proofread. • The report should fall with the required word count.
Appendices	These may be provided to include further details of results, certain illustrative parts of program code, if any, user documentation, log of project milestones. In particular, if there are technical details of the work done that might be useful to others who wish to build on this work, but that are not sufficiently important to the project as a whole to justify being discussed in the main body of the dissertation, then they should be included as appendices. Appendices are not treated as part of the dissertation for the purposes of assessing it. In other words, there is no expectation that the examiners should read the appendices as part of the assessment process. Hence, it

	is important that any material which will be significant to judging the quality of the dissertation or of the project as a whole should be in the main body of the dissertation, and not in appendices.

Appendix 4: Dissertation Structure – IT Consultancy Pathway

Note : The word count applies only to Chapters 1- 8

Title page	Title, name, employer's name, date, and the following statement: "This report is submitted in partial fulfilment of the requirement for the degree of [BSc Apprenticeship in Digital Technology Solutions] by [Full Name]". The title the dissertation ends up with should be meaningful. E.g., "My Design Project" is not meaningful.
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Abstract	This should be two short paragraphs (100 words total), summarising the dissertation. It is important that this is not just a restatement of the original project outline. A suggested flow is background, project aims and main achievements. A bad abstract would have a final paragraph that just said "the achievements will be described" - this is useless, as it says nothing. From the abstract a reader should be able to ascertain if the project is of interest to them and presents results of which they would like to know more details.
Acknowledgements	Thanks to whoever may have helped you in any way - both serious and a bit of fun.
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Chapter 1 **Introduction** **5%**	• Details the topic, the background to the project, why the topic is relevant or of interest, what the author hopes to achieve, the aims and objectives of the project. • Has a clear narrative. • Follows a standard introduction format with general statements, specific statements, and a clear thesis statement. • Excellently written. Clear, direct, and precise.
Chapter 2 **Research** **10%**	• Summarises the background reading you have done for the project subject area. • References any relevant theories, studies or related projects that inform your work. • Includes only authoritative sources. All sources are clearly and properly cited. • Evidence of detailed research in the form of detailed references. References appropriate and properly formatted. Citations done correctly.
Chapter 3: **Requirements Analysis** **10%**	• This chapter defines and analyses each requirement clearly. • The requirements may fall under one or more than one of the following categories: a) Functional Requirements These define how a product/service/solution should function from the end-user's perspective. They describe the features and functions with which the end-user will interact directly. b) Operational Requirements These define operations that must be carried out in the background to keep the product or process functioning over a period. c) Technical Requirements These define the technical issues that must be considered to successfully implement the process or create the product. d) Transitional Requirements These are the steps needed to implement the new product or process smoothly. • This chapter is also expected to briefly address the following: - Methods used to find/define requirements. - The perceived risks, issues and dependencies.

	- Management of risks, issues and indecencies and their impacts on solving the client's problem. - Analysis the cost vs the benefit.
Chapter 4 **Design** **20%**	• Give the reader a clear picture of the solution you plan to implement. • Give the top-level details of how the solution meets the requirement. Also identify constraints on the solution, that are important in guiding decision making throughout the development process. • Consideration should be given to the anticipated and agreed stages in the consultancy intervention, for example, contracting and agreeing the remit, access, outcomes, exploring the issue, etc. • Describe and justify the choice of methodology and methods adopted for collecting data – such as questionnaire, semi-structured interviews, focus groups, observation – and discuss the potential benefits and limitations of the chosen methods. • Address the process of formulating the solution and proposing it to the client, as well as the documentations that need to be created to support these.
Chapter 5 **Prototype and Deliverables** **20%**	• Describe the product, at a finer level of detail, down to the description of the prototype/deliverables. • Describe the approaches that have been taken to implement the proposed solution. • Highlight the level of engagement with end users. • Show how the implementation has been presented to the client.
Chapter 6: **Results and Evaluation** **10%**	• The main results of your work should be presented, together with critical evaluation. The chapter should cover two things (although these would not be used as section headings): - Findings - present all the results (products, experimental findings, theories, prototypes, etc.) generated during the project. This may also include some off-topic findings that were not expected. - Objectives achieved - describes the degree to which the findings support the original objectives laid out for the project. Show how the set objectives have been met.

	• Address the following: - How is this project going to be evaluated? - How well does your application perform? - Any further work?
Chapter 7 Conclusions **5%**	• The conclusion chapter generally connects the beginning of your work (introduction, stated problem, project objectives) to • the findings/ results and implications of your work. • Analyses the success or otherwise of the project. • Shows where the project has met business needs, and where it has failed to meet its business needs. • Makes recommendations for further development.
Chapter 8: Reflection **10%**	Details from a personal and reflective perspective: - What you have achieved during the project - The main lessons you have learned. - Mistakes you have made. - Things you would do differently next time.
References	• You must provide references for all source material that you have read in the course of your project (e.g., books, journal articles, web sources, etc.). • This includes cited material and non-cited material. • References should be written in the Harvard style. • All information from external sources that you include in your written work must be clearly and correctly cited. This includes any paraphrases or quotations. https://www.ukessays.com/referencing/harvard/
Quality of Writing **10%**	• The report is expected to be presented in a professional manner and follow the above structure. • The descriptions, explanations and arguments are expected to be well structured logically with good division and flow at all levels: chapter, section, paragraph, sentence, and clause, supported by diagrams, graphs, tables and standardised citations. • The English must be clear, precise, concise, and grammatically correct. • The report should be properly spell-checked and proofread. • The report should fall with the required word count.

Appendices	These may be provided to include further details of results, certain illustrative parts of program code, if any, user documentation, log of project milestones. In particular, if there are technical details of the work done that might be useful to others who wish to build on this work, but that are not sufficiently important to the project as a whole to justify being discussed in the main body of the dissertation, then they should be included as appendices. Appendices are not treated as part of the dissertation for the purposes of assessing it. In other words, there is no expectation that the examiners should read the appendices as part of the assessment process. Hence, it is important that any material which will be significant to judging the quality of the dissertation or of the project as a whole should be in the main body of the dissertation, and not in appendices.

Appendix 5: Dissertation Structure – Cyber Security Pathway

Title page	Title, name, employer's name, date, and the following statement: "This report is submitted in partial fulfilment of the requirement for the degree of [BSc Apprenticeship in Digital Technology Solutions] by [Full Name]". The title the dissertation ends up with should be meaningful. E.g., "My Design Project" is not meaningful.
Declaration	The second page should be the following declaration: "All sentences or passages quoted in this report from other people's work have been specifically acknowledged by clear cross-referencing to author, work and page(s). Any illustrations that are not the work of the author of this report have been used with the explicit permission of the originator and are specifically acknowledged. I understand that failure to do this amount to plagiarism and will be considered grounds for failure in this project and the degree. (Your name**)" ** Note that you should type your name here, but you are not required to physically sign this page. By submitting your project through Google Classroom, you agree to the declaration above.
Abstract	This should be two short paragraphs (100 words total), summarising the dissertation. It is important that this is not just a restatement of the original project outline. A suggested flow is background, project aims and main achievements. Avoid sentences that don't add any value to the abstract, such as "The outcomes will be described." This doesn't tell the reader anything about the project. From the abstract a reader should be able to ascertain if the project is of interest to them and present results of which they would like to know more details.
Acknowledgements	Thanks to whoever may have helped you in any way - both serious and a bit of fun.
Contents	Includes titles and page numbers of all sections and subsections. Chapter 1 begins on page 1. Use Roman numerals for all previous pages, e.g. title page (i), signed declaration (ii) abstract (iii), acknowledgements (iv) and contents (v).
Lists of Tables, Figures, and Glossary (list of abbreviations)	They should start on the page following the table of contents and be in the order Tables, Figures, Glossary (list of abbreviations). Items in lists of Tables and Figures should be in the order in which they occur in the text.

Chapter 1 **Introduction** **5%**	• Details the topic, the background to the project, why the topic is relevant or of interest, what the author hopes to achieve, the aims and objectives of the project. • Has a clear narrative. • Follows a standard introduction format with general statements, specific statements, and a clear thesis statement. • Excellently written. Clear, direct, and precise.
Chapter 2 **Research** **10%**	• Summarises the background reading you have done for the project subject area. • References any relevant theories, studies or related projects that inform your work. • Includes only authoritative sources. All sources are clearly and properly cited. • Evidence of research in the form of detailed references. References appropriate and properly formatted. Citations done correctly.
Chapter 3 **Requirements Analysis and Strategies** **15%**	Requirement analysis is the process of determining the needs and expectations of stakeholders involved in a cybersecurity project. <u>Stakeholder Identification</u> Identify who will be affected by your research, such as organisations, security professionals, end-users, and regulatory bodies. <u>Problem Definition</u> Clearly define the cybersecurity problem you intend to address. This could relate to vulnerabilities, threats, incidents, or compliance issues. <u>Functional Requirements</u> These are the specific functionalities that your cybersecurity solution or research needs to provide. Examples might include: • Detection and prevention of cyber threats • Incident response capabilities • User authentication mechanisms • Compliance with regulatory standards (e.g., GDPR, HIPAA) <u>Non-Functional Requirements</u> These requirements specify how the system performs its functions. They often include: • Performance: The speed and efficiency of threat detection systems. • Scalability: The ability of a solution to handle increasing amounts of data or users. • Usability: The ease of use for security tools by non-technical staff. • Reliability: The dependability of the security solution in terms of uptime and accuracy.

	Risk management Strategy Once risks are identified and evaluated, develop strategies to mitigate them such as: - Preventive Measures: Implementing security controls to reduce the likelihood of risks (e.g., firewalls, intrusion detection systems). - Detection Measures: Establishing monitoring to quickly identify and respond to incidents (e.g., security information and event management systems). - Response Measures: Developing incident response plans to address potential breaches when they occur. Thorough analysis of the problem domain - Analysis of security requirements. - Requirements should be fully and appropriately documented, actionable, measurable, testable, and linked directly to previously identified business needs. - Requirements should be explicitly linked to specific system stakeholders.
Chapter 4 **Design** **20%**	• Design Principles - User-centric design prioritising end-user needs. - Adaptability to evolving security landscapes. - Compliance with regulatory and industry standards. • System Overview and Design Techniques - High-level architecture outlining components and interactions. - Summary of key functions (threat detection, incident response, compliance monitoring). • Proposed Design in a network simulation software - Visualisation and testing of system interactions. - Simulation scenarios to model typical threats and responses. - Professional-quality graphics for network architecture and data flow. • Justification of Design Choices Designs should be without error. They should cover the system from all perspectives (e.g. UI, data, functionality, and network). Graphics should be of professional quality, and should be properly incorporated into the report. Possible viewpoints might be:

	- the business model the system supports; - the dynamic behaviour of the system; - how data flows through the system; As well as describing the system, it is important that you justify its design, for example, by discussing the implications of constraints on your solution and different design choices, and then giving reasons for making the choices you did.
Chapter 5 **Solution Simulation** **25%**	The simulation demonstrates that the proposed solutions are optimal by highlighting their efficacy in addressing identified risks. This involves implementing a small-scale version of the proposed security solution (or approach) to validate its effectiveness in addressing specific vulnerabilities or threats. It also provides a comprehensive foundation for evaluating the feasibility and impact of security solutions. This includes key steps: ● Developing and communicating Threat Vulnerability-Asset Grids involves identifying and mapping vulnerabilities, assets, and threats. These grids serve as a foundation for designing targeted IT solutions to analyse and mitigate risks associated with cyberattacks and vulnerabilities. ● Develop Disaster Recovery,Strategies and solutions within ethical and cyber law boundaries. The simulation also includes a detailed analysis of any deviations from the original project plan, explaining how these were managed using the chosen project management methodology.
Chapter 6 **Results** **10%**	● Analyse and interpret the obtained result: you are required to demonstrate how the proposed solutions effectively address identified risks, validating them as optimal. ● Addressing Deviations: Detail any deviations from the project plan, explaining how they were managed using your chosen project management methodology. ● Resolving Issues: Making Informed Decisions and Recommendations Based on the result and analysis. This involves presenting the findings to relevant stakeholders, outlining the implications for the organisation's cybersecurity

	posture, and formulating actionable plans based on the validated results.
Chapter 7 **Conclusions** **5%**	• Analyses the success or otherwise of the project. • Shows where the project has met business needs, and where it has failed to meet its business needs. • Makes recommendations for further development.
Chapter 8 **Reflection** **10%**	Details from a personal and reflective perspective : ix. What you have achieved in the course of the project x. The main lessons you have learned xi. Mistakes you have made xii. Things you would do differently next time.
References	• You must provide references for all source material that you have read in the course of your project (e.g. books, journal articles, web sources, etc.). • This includes cited material and non-cited material. • References should be written in the Harvard style. • All information from external sources that you include in your written work must be clearly and correctly cited. This includes any paraphrases or quotations. https://www.ukessays.com/referencing/harvard/ https://www5.open.ac.uk/library/referencing-and-plagiarism/quick-guide-to-harvard-referencing-cite-them-right
Quality of Writing **10%**	• The report is expected to be presented in a professional manner and follow the above structure. • The descriptions, explanations and arguments are expected to be well structured logically with good division and flow at all levels: chapter, section, paragraph, sentence, and clause, supported by diagrams, graphs, tables and standardised citations. • The English must be clear, precise, concise, and grammatically correct. • The report should be properly spell-checked and proofread. • The report should fall with the required word count.

Appendix 6: Referencing the confidential information

How to reference confidential information in Dissertation

1. Add the following text at the START of your document

*Some evidence of this project cannot be shown due to confidentiality and/or intellectual property restrictions. The use of a **red asterisk (*)** will highlight where there is detail missing that cannot be included for these reasons.

2. Include an asterisk in red where there are details/ evidence redacted throughout the document.

*e.g. I used in-house bespoke JavaScript UIX tools and a custom API script to produce a dynamic real-time dashboard for our banking clients, direct from our cloud-hosted MySQL database**

3. At the END of the report - add signed declaration by employer / manager

CONFIDENTIALITY STATEMENT - {EMPLOYER NAME}

I confirm that **{APPRENTICE NAME}** was not able to show some detail of their work due to confidentiality and/or intellectual property but confirm that this statement is a fair reflection of their contribution to the project.

Name .....

Job Title .....

Date DD / MM / YYYY .....

Signature [image file of signature] .....